

CLAIMS

What is claimed is:

1 1. A method of displaying latency, the method implemented in a broker-dealer
2 computer system, the system being engaged in automated processing of orders for
3 securities including sending messages to markets and receiving from markets responses
4 to messages, the method comprising the steps of:

5 recording for messages sent to markets the time when each message is sent and the
6 identity of the market to which each message is sent, the messages comprising
7 orders and cancellations of orders;

8 recording for responses received from markets the time when each response is received,
9 wherein each response corresponds to a particular message;

10 calculating for at least one market a latency dependent upon at least one recorded time
11 when at least one message is sent to the market and at least one recorded time
12 when a corresponding response is received from the market;

13 displaying the identity of the market and the latency for the market.

1 2. The method of claim 1 wherein the latency for a market further comprises latency
2 for a port.

1 3. The method of claim 1 wherein the latency comprises an instant latency
2 calculated dependent upon one recorded time when one message is sent to a market and
3 one recorded time when a corresponding response is received from the market.

1 4. The method of claim 1 wherein the latency comprises an average latency
2 dependent upon at least one recorded time when at least one message is sent to the market
3 and at least one recorded time when a corresponding response is received from the
4 market, wherein all the recorded times used in calculating the latency are recorded during
5 a defined period of time.

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1 5. The method of claim 1 wherein the latency comprises an average latency
2 dependent upon at least one recorded time when at least one message is sent to the market
3 and at least one recorded time when a corresponding response is received from the
4 market, wherein the number of recorded times used to calculated the average latency is
5 limited to a defined maximum.

1 6. The method of claim 1 wherein the latency comprises an average latency
2 dependent upon at least one recorded time when at least one message is sent to the market
3 and at least one recorded time when a corresponding response is received from the
4 market, wherein the calculating uses the latest recorded time when a message is sent to
5 the market and the latest recorded time when a corresponding response is received from
6 the market, and wherein the number of recorded times used to calculated the average
7 latency is limited to a defined maximum.

1 7. The method of claim 1 further comprising the steps of:
2 counting the number of messages sent to at least one market during a period of time,
3 including storing in computer memory the number of messages sent to the market during
4 the period of time;
5 counting the number of responses received from the market during the period of
6 time, including storing in computer memory the number of responses
7 received from the market during the period of time; and
8 displaying, in addition to the identity of the market and the latency for the market,
9 the number of messages sent to the market and the number of responses
10 received from the market during the period of time.

1 8. The method of claim 1 further comprising the steps of:
2 counting the number of messages sent to a market through a port during a period
3 of time, including storing in computer memory the number of messages
4 sent to the market through the port during the period of time;
5 counting the number of responses received from the market through the port
6 during the period of time, including storing in computer memory the

1 number of responses received from the market through the port during the period
2 of time; and
3 displaying, in addition to the identity of the market and the latency for the market,
4 the number of messages sent to the market through the port and the
5 number of responses received from the market through the port during the
6 period of time.

1 9. Automated computing machinery comprising a broker-dealer computer system,
2 the system being engaged in automated processing of orders for securities including
3 sending messages to markets and receiving from markets responses to messages, the
4 machinery comprising:

5 at least one computer processor programmed to:

6 record in computer memory, for messages sent to markets, the time when
7 each message is sent and the identity of the market to which each
8 message is sent, the messages comprising orders and cancellations
9 of orders;

10 record in computer memory, for responses received from markets, the time
11 when each response is received, wherein each response
12 corresponds to a particular message;

13 calculate, for at least one market, a latency dependent upon at least one
14 recorded time when at least one message is sent to the market and
15 at least one recorded time when a corresponding response is
16 received from the market;

17 display the identity of the market and the latency for the market; and

18 computer memory coupled to the processor, the processor being further
19 programmed to store in computer memory the latency.

1 10. The automated computing machinery of claim 9 wherein the latency for a market
2 further comprises latency for a port.

1 11. The automated computing machinery of claim 9 wherein the processor is further
2 programmed to calculate latency as an instant latency calculated dependent upon one

1 recorded time when one message is sent to a market and one recorded time when a
2 corresponding response is received from the market.

1 12. The automated computing machinery of claim 9 wherein the processor is further
2 programmed to calculate latency as an average latency dependent upon at least one
3 recorded time when at least one message is sent to the market and at least one recorded
4 time when a corresponding response is received from the market, wherein all the
5 recorded times used in calculating the latency are recorded during a defined period of
6 time.

1 13. The automated computing machinery of claim 9 wherein the processor is further
2 programmed to calculate latency as an average latency dependent upon at least one
3 recorded time when at least one message is sent to the market and at least one recorded
4 time when a corresponding response is received from the market, wherein the number of
5 recorded times used to calculate the average latency is limited to a defined maximum.

1 14. The automated computing machinery of claim 9 wherein the latency comprises an
2 average latency dependent upon at least one recorded time when at least one message is
3 sent to the market and at least one recorded time when a corresponding response is
4 received from the market, wherein the processor is further programmed to calculate
5 latency dependent upon the latest recorded time when a message is sent to the market and
6 the latest recorded time when a corresponding response is received from the market, and
7 wherein the processor is further programmed to use in calculating average latency a
8 number of recorded times limited to a defined maximum.

1 15. The automated computing machinery of claim 9 further comprising the processor
2 further programmed to:

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1 count the number of messages sent to at least one market during a period of time,
2 including storing in computer memory the number of messages sent to the
3 market during the period of time;
4 count the number of responses received from the market during the period of
5 time, including storing in computer memory the number of responses
6 received from the market during the period of time; and
7 display, in addition to the identity of the market and the latency for the market,
8 the number of messages sent to the market and the number of responses
9 received from the market during the period of time.

10

11 16. The automated computing machinery of claim 9 further comprising the processor
12 further programmed to:

13 count the number of messages sent to a market through a port during a period of
14 time, including storing in computer memory the number of messages sent
15 to the market through the port during the period of time;
16 count the number of responses received from the market through the port during
17 the period of time, including storing in computer memory the number of
18 responses received from the market through the port during the period of
19 time; and
20 display, in addition to the identity of the market and the latency for the market,
21 the number of messages sent to the market through the port and the
22 number of responses received from the market through the port during the
23 period of time.